

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.-2. (Cancelled).

3. (Currently Amended) The light source apparatus according to claim 7 or claim 81 or claim 2, wherein the first concave mirror has one or a plurality of quadratic surfaces as the reflection plane.

4. (Previously Presented) The light source apparatus according to claim 3, wherein the quadratic surface of the first concave mirror is a part of an ellipsoidal surface, and one of the focuses of the ellipsoidal surface substantially coincides with the source of luminescence of the light generating means while the other coincides with the focus of the light collected by the first concave mirror.

5. (Currently Amended) The light source apparatus according to claim 7 or claim 81 or claim 2, wherein the second concave mirror has one or a plurality of quadratic surfaces as the reflection plane.

6. (Previously Presented) The light source apparatus according to claim 5, wherein the quadratic surfaces of the second concave mirror are a part of a spherical surface and a center of the spherical surface substantially coincides with the source of luminescence of the light generating means.

7. (Currently Amended) ~~The light source apparatus according to claim 1,~~ A light source apparatus comprising:

light generating means;

a first concave mirror of collecting a part of light radiated from the light generating means; and

a second concave mirror of collecting another part of the light radiated from the light generating means not collected by the first concave mirror and reflecting it on the first concave mirror,

wherein a reflection plane of the first concave mirror and a reflection plane of the second concave mirror are in a form of non-rotation symmetry to a reference axis connecting a source of luminescence of the light generating means to a focus of the light collected by the first concave mirror respectively;

a distance between the reflection plane of the second concave mirror and the source of luminescence is shorter than the distance between the source of luminescence and the focus of the light collected by the first concave mirror;

a part of the reflection plane of the first concave mirror is formed around the reference axis; and

the second concave mirror is placed substantially outside luminous fluxes formed by having the light of the light generating means reflected on the first concave mirror,

wherein the reflection plane of the first concave mirror is located closer to the source of luminescence than the reflection plane of the second concave mirror; and

the following relations are satisfied if, when a focusing angle of the first concave mirror is divided in two by a plane including the reference axis, a larger angle is α , a smaller angle is β , a maximum angle of the light radiated from the light generating means to the first concave mirror and the second concave mirror is γ , and the focusing angle of the second concave mirror is θ :

(Formula 1)

$$\alpha > \beta > 0$$

(Formula 2)

$$\alpha + \beta \geq 180 \text{ degrees}$$

(Formula 3)

$$0 < \theta \leq \gamma - \beta.$$

8. (Currently Amended) ~~The light source apparatus according to claim 2, A~~
light source apparatus comprising:

light generating means;

a first concave mirror of collecting a part of light radiated from the light generating means; and

a second concave mirror of collecting another part of the light radiated from the light generating means not collected by the first concave mirror and reflecting it on the first concave mirror,

wherein a reflection plane of the first concave mirror and a reflection plane of the second concave mirror are in a form of non-rotation symmetry to a reference axis connecting a source of luminescence of the light generating means to a focus of the light collected by the first concave mirror respectively;

a distance between the reflection plane of the second concave mirror and the source of luminescence is shorter than the distance between the source of luminescence and the focus of the light collected by the first concave mirror;

a part of the reflection plane of the first concave mirror is formed around the reference axis; and

the second concave mirror is placed in luminous fluxes formed by having the light of the light generating means reflected on the first concave mirror,

wherein the reflection plane of the second concave mirror is located closer to the source of luminescence than the reflection plane of the first concave mirror; and

the following relations are satisfied if, when a focusing angle of the first concave mirror is divided in two by a plane including the reference axis, a larger angle is α , a smaller angle is β , a maximum angle of the light radiated from the

light generating means to the first concave mirror and the second concave mirror is γ , and the focusing angle of the second concave mirror is θ :

(Formula 1)

$$\alpha > \beta > 0$$

(Formula 2)

$$\alpha + \beta \geq 180 \text{ degrees}$$

(Formula 4)

$$0 < \theta \leq 180 \text{ degrees.}$$

9. (Currently Amended) The light source apparatus according to claim 7 or claim 81 or claim 2, wherein

the light generating means is a lamp having a vessel body of accommodating the source of luminescence;

the vessel body has a spherical vessel portion of transmitting radiation light from the source of luminescence and a pair of ends projecting from the spherical vessel portion; and

the pair of ends is provided around the reference axis.

10. (Original) The light source apparatus according to claim 9, wherein the spherical vessel portion has a first opposed plane opposed to the reflection plane of the first concave mirror and a second opposed plane opposed to the reflection plane of the first concave mirror and the reflection plane of the second concave mirror; and

the part of the reflection plane of the first concave mirror is at least opposed to the second opposed plane.

11. (Cancelled).

12. (Currently Amended) The lighting apparatus according to ~~claim 11~~claim 15, wherein the lens means is a rod integrator.

13. (Currently Amended) The lighting apparatus according to ~~claim 11~~claim 15, wherein the lens means is a lens array.

14. (Currently Amended) The lighting apparatus according to ~~claim 11~~claim 15, wherein there are a plurality of the light source apparatuses placed so that the respective reference axes thereof coincide in the same plane; and

it further comprises light guiding means of guiding the light emitted from the plurality of light source apparatus to the lens means.

15. (Currently Amended) ~~The lighting apparatus according to claim 11, A~~
lighting apparatus comprising:

the light source apparatus according to claim 7 or claim 8; and

lens means placed at a position optically connecting with the focus of the light collected by the first concave mirror of the light source apparatus and converting the light emitted from the light source apparatus substantially to parallel light,

wherein the light source apparatus is one of a ~~the~~ plurality of light source apparatus which are placed so that the respective reference axes thereof intersect at one point in space; and

the lens means is provided at a position corresponding to the one point.

16. (Original) The lighting apparatus according to claim 15, wherein the plurality of light source apparatus are placed so that the second concave mirrors are mutually opposed.

17. (Original) The lighting apparatus according to claim 15, wherein the plurality of light source apparatus are placed so that the first concave mirrors are mutually opposed.

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18. (Cancelled).